

WHAT IS CLAIMED IS:

5 (B2) 1. A treatment assembly for providing ultrasonic and electromagnetic stimulation to a treatment area, said assembly comprising:
at least one ultrasonic transducer assembly having at least one ultrasonic transducer;
at least one electromagnetic coil assembly having at least one electromagnetic coil operatively associated with said at least one ultrasonic transducer assembly;
a placement module configured to be worn by a patient, said placement module being configured to receive said at least one ultrasonic transducer assembly and said at least one electromagnetic coil assembly such that when said placement module is worn said at least one ultrasonic transducer and said at least one electromagnetic coil are positioned to focus energy toward said treatment area; and
15 a main operating unit for providing at least one driving signal to said at least one ultrasonic transducer assembly for driving said at least one ultrasonic transducer and said at least one electromagnetic coil to provide ultrasonic and electromagnetic stimulation to said treatment area.

20 2. The treatment assembly according to claim 1, wherein said main operating unit is coupled to said at least one ultrasonic transducer assembly by a first cable and said at least one electromagnetic coil assembly by a second cable for providing said at least one driving signal to the at least one ultrasonic transducer assembly and said at least one electromagnetic coil assembly at different times and at varying periods.

3. The treatment assembly according to claim 1, wherein said at least one electromagnetic coil is positioned at an angle θ with respect to a horizontal axis of said at least one ultrasonic transducer, where θ is greater than or equal to zero degrees and less than or equal to 90 degrees.

4. The treatment assembly according to claim 1, wherein said at least one electromagnetic coil is wrapped around said placement module.

5. The treatment assembly according to claim 1, wherein said at least one ultrasonic transducer is positioned closer to said treatment area than said at least one electromagnetic coil when said placement module is positioned in proximity to said treatment area.

6. The treatment assembly according to claim 1, wherein said placement module is constructed from a conductive material and said at least one ultrasonic transducer and said at least one electromagnetic coil are electrically coupled to said main operating unit via said conductive material.

7. The treatment assembly according to claim 1, wherein said at least one ultrasonic transducer includes means for receiving reflected diagnostic data.

8. The treatment assembly according to claim 1, wherein said at least one electromagnetic coil provides a non-uniform electromagnetic field.

9. A method for ultrasonically and electromagnetically treating tissue, said method comprising the steps of:

5 providing a main operating unit having an internal power source coupled to at least one ultrasonic transducer assembly and at least one electromagnetic coil assembly, said at least one ultrasonic transducer assembly includes at least one ultrasonic transducer, said at least one electromagnetic coil assembly includes at least one electromagnetic coil;

10 providing a placement module configured to receive said at least one ultrasonic transducer assembly and said at least one electromagnetic coil assembly such that when said placement module is secured to a patient's body said at least one ultrasonic transducer and said at least one electromagnetic coil are positioned to focus energy toward said treatment area;

exciting said at least one ultrasonic transducer to impinge ultrasonic waves towards the treatment area; and

exciting said at least one electromagnetic coil to create an electromagnetic field.

15 10. The method according to claim 9, wherein said steps of exciting said at least one ultrasonic transducer and said at least one electromagnetic coil are performed simultaneously by transmitting a control signal from said main operating unit.

20 11. The method according to claim 9, wherein said steps of exciting said at least one ultrasonic transducer and said at least one electromagnetic coil are performed independently by transmitting from said main operating unit at least a first control signal to excite said at least one ultrasonic transducer to propagate ultrasonic waves and by transmitting at least a second control signal to excite said at least one electromagnetic coil to generate magnetic field lines.

12. The method according to claim 11, further comprising the step of varying a magnitude of said first control signal to vary a transmission power of said propagated ultrasonic waves.

13. The method according to claim 11, further comprising the step of varying a magnitude of said second control signal to vary a magnetic level of the magnetic field lines.

14. The method according to claim 9, further comprising the step of orienting said at least one electromagnetic coil at an angle θ with respect to a horizontal axis of said at least one ultrasonic transducer.

15. The method according to claim 14, wherein θ is greater than or equal to zero degrees and less than or equal to 90 degrees.

16. The method according to claim 9, further including the step of receiving reflected diagnostic data by said at least one ultrasonic transducer.

17. The method according to claim 9, further comprising the step of securing said main operating unit within a carrying case for providing patient mobility during treatment.

18. The method according to claim 9, wherein said step of exciting said at least one electromagnetic coil creates a non-uniform electromagnetic field.

19. A method for ultrasonically and electromagnetically treating tissue, said method comprising the steps of:

securing at least one ultrasonic transducer to a placement band;
securing at least one electromagnetic coil to said placement band;
affixing the placement band on a patient such that said at least one ultrasonic transducer is in proximity to said treatment area;
exciting said at least one ultrasonic transducer to impinge ultrasonic waves towards said treatment area; and
exciting said at least one electromagnetic coil to create a modulating force to modulate said ultrasonic waves.

20. The method according to claim 19, further comprising the step of connecting said at least one ultrasonic transducer and said at least one electromagnetic coil to an operating unit, said operating unit having an internal power source.

21. The method according to claim 19, further including the step of receiving reflected diagnostic data by said at least one ultrasonic transducer.

22. The method according to claim 19, further comprising the step of orienting said at least one electromagnetic coil at an angle θ with respect to a horizontal axis of said at least one ultrasonic transducer, where θ is greater than or equal to zero degrees and less than or equal to 90 degrees.

23. The method according to claim 17, wherein said step of exciting said at least one electromagnetic coil creates a non-uniform modulating force.

24. An apparatus for providing ultrasonic and electromagnetic stimulation to a treatment area, said apparatus comprising:

means for propagating a pressure wave towards said treatment area;

means for generating an electromagnetic field to modulate said pressure wave; and

control means for controlling the means for generating to vary the amount of modulation of said pressure wave and for activating said means for propagating and said means for generating at respective times.

25. The apparatus according to claim 24, wherein said means for generating generates a non-uniform electromagnetic field.

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